

WE CLAIM:

1. An absorbent material, comprising:
an upper layer including pulp fluff and superabsorbent material;
a lower layer including pulp fluff and superabsorbent material;
wherein the absorbent material has a thickness in a range of between 0.5 and 7.5 millimeters, and an absorbent capacity between about 14 and 40 grams 0.9 w/v% saline solution per gram of absorbent material, and the lower layer has a greater density than the upper layer.
2. The absorbent material of Claim 1, wherein the upper layer has a density in a range of between 0.05 and 0.45 grams per cubic centimeter.
3. The absorbent material of Claim 1, wherein the upper layer has a density in a range of between 0.1 and 0.4 grams per cubic centimeter.
4. The absorbent material of Claim 1, wherein the lower layer has a density in a range of between 0.15 and 0.55 grams per cubic centimeter.
5. The absorbent material of Claim 1, wherein the lower layer has a density in a range of between 0.2 and 0.5 grams per cubic centimeter.

6. The absorbent material of Claim 1, wherein a difference between the density of the upper layer and the density of the lower layer is in a range of between 0.01 and 0.40 grams per cubic centimeter.

7. The absorbent material of Claim 1, wherein a difference between the density of the upper layer and the density of the lower layer is in a range of between 0.05 and 0.35 grams per cubic centimeter.

8. The absorbent material of Claim 1, wherein a difference between the density of the upper layer and the density of the lower layer is in a range of between 0.15 and 0.25 grams per cubic centimeter.

9. The absorbent material of Claim 1, wherein the upper layer comprises between 20 and 70 wt% superabsorbent material.

10. The absorbent material of Claim 1, wherein the lower layer comprises between 10 and 80 wt% superabsorbent material.

11. The absorbent material of Claim 1, wherein the absorbent material has a thickness in a range of 1 to 7 millimeters.

12. The absorbent material of Claim 1, wherein the absorbent material has an absorbent capacity of at least 16 grams 0.9 w/v% saline solution per gram of absorbent material.

13. The absorbent material of Claim 1, wherein the absorbent material has an absorbent capacity of at least 18 grams 0.9 w/v% saline solution per gram of absorbent material.

14. The absorbent material of Claim 1, further comprising an intermediate layer between the upper layer and the lower layer, wherein the intermediate layer includes pulp fluff and superabsorbent material.

15. The absorbent material of Claim 1, further comprising an additional layer on top of the upper layer, wherein the additional layer includes pulp fluff and superabsorbent material.

16. The absorbent material of Claim 1, wherein the upper layer comprises a bottom surface facing the lower layer, the lower layer comprises a top surface facing the bottom surface of the upper layer, and a surface area of the bottom surface of the upper layer is greater than a surface area of the top surface of the lower layer.

17. The absorbent material of Claim 1, wherein the lower layer is discontinuous.

18. The absorbent material of Claim 1, wherein the upper layer is drum-formed.

19. The absorbent material of Claim 1, wherein the lower layer is air-laid.

20. An absorbent article comprising the absorbent material of Claim 1.

21. A diaper comprising the absorbent material of Claim 1.

22. A training pant comprising the absorbent material of Claim 1.

23. A feminine hygiene product comprising the absorbent material of Claim 1.

24. An incontinence product comprising the absorbent material of Claim 1.

25. A swim wear garment comprising the absorbent material of Claim 1.

26. An absorbent material, comprising:

an upper layer including pulp fluff and superabsorbent material;

a lower layer including pulp fluff and superabsorbent material;

wherein the absorbent material has a thickness in a range of between 0.5 and 7.5 millimeters, and an absorbent capacity between about 14 and 40 grams 0.9 w/v% saline solution per gram of absorbent material, and the lower layer has a density equal to a density of the upper layer.

27. An absorbent garment, comprising:

a chassis defining a waist opening and first and second leg openings;

the chassis including at least a liquid-permeable body side liner, an absorbent assembly and a substantially liquid-impermeable outer cover layer;

wherein the absorbent assembly includes an upper layer of pulp fluff combined with superabsorbent material, a lower layer of pulp fluff combined with superabsorbent material, the lower layer has a greater density than the upper layer, and the absorbent assembly has a thickness in a range of between 0.5 and 7.5 millimeters and an absorbent capacity between about 14 and 40 grams 0.9 w/v% saline solution per gram of absorbent material.

28. The absorbent garment of Claim 27, wherein the upper layer of the absorbent assembly has a density in a range of between 0.1 and 0.4 grams per cubic centimeter.

29. The absorbent garment of Claim 27, wherein the lower layer of the absorbent assembly has a density in a range of between 0.2 and 0.5 grams per cubic centimeter.

30. The absorbent garment of Claim 27, wherein the upper layer of the absorbent assembly comprises between 20 and 70 wt% superabsorbent material.

31. The absorbent garment of Claim 27, wherein the lower layer of the absorbent assembly comprises between 10 and 80 wt% superabsorbent material.

32. The absorbent garment of Claim 27, wherein the absorbent assembly has a thickness in a range of 1 to 7 millimeters.

33. The absorbent garment of Claim 27, wherein the absorbent material has an absorbent capacity of at least 16 grams 0.9 w/v% saline solution per gram of absorbent material.

34. The absorbent material of Claim 27, wherein the absorbent material has an absorbent capacity of at least 18 grams 0.9 w/v% saline solution per gram of absorbent material.

35. The absorbent garment of Claim 27, wherein the absorbent assembly further comprises an intermediate layer between the upper layer and the lower layer, wherein the intermediate layer includes pulp fluff and superabsorbent material.

36. The absorbent garment of Claim 35, wherein the intermediate layer is drum-formed.

37. The absorbent garment of Claim 35, wherein the intermediate layer is air-laid.

38. The absorbent garment of Claim 27, wherein the absorbent assembly further comprises an additional layer on top of the upper layer, wherein the additional layer includes pulp fluff and superabsorbent material.

39. The absorbent garment of Claim 38, wherein the additional layer is drum-formed.

40. The absorbent garment of Claim 27, wherein the upper layer of the absorbent assembly is drum-formed.

41. The absorbent garment of Claim 27, wherein the lower layer of the absorbent assembly is air-laid.

42. The absorbent garment of Claim 27, wherein the lower layer is discontinuous and is placed in desired locations of the absorbent assembly.

43. An absorbent garment, comprising:
a chassis defining a waist opening and first and second leg openings;
the chassis including at least a liquid-permeable body side liner, an absorbent assembly and a substantially liquid-impermeable outer cover layer;

wherein the absorbent assembly includes an upper layer of pulp fluff combined with superabsorbent material, a lower layer of pulp fluff combined with superabsorbent material, the lower layer has a density equal to a density of the upper layer, and the absorbent assembly has a thickness in a range of between 0.5 and 7.5 millimeters and an absorbent capacity between about 14 and 40 grams 0.9 w/v% saline solution per gram of absorbent material.

44. A method of making a composite absorbent material, comprising the steps of:

providing a first absorbent material;

homogeneously mixing superabsorbent material and fluff pulp in a forming chamber of an online drum former;

forming a second absorbent material from the homogeneously mixed superabsorbent material and fluff pulp as the homogeneously mixed superabsorbent material and fluff pulp exits the forming chamber onto a forming screen on a forming drum of the drum former;

compacting the second absorbent material to a density of at least 0.25 grams per cubic centimeter after the second absorbent material leaves the forming screen; and

bonding the first absorbent material and the second absorbent material together.

45. The method of Claim 44, wherein the first absorbent material is air-laid.

46. The method of Claim 44, wherein the first absorbent material comprises a roll good laminate.

47. The method of Claim 44, further comprising the step of depositing the second absorbent material onto the first absorbent material prior to bonding the first absorbent material and the second absorbent material together.

48. The method of Claim 44, further comprising the step of depositing the second absorbent material onto a carrier device and applying the first absorbent material to the second absorbent material on the carrier device prior to bonding the first absorbent material and the second absorbent material together.

49. The method of Claim 44, further comprising the step of wrapping the composite absorbent material in tissue.

50. The method of Claim 44, further comprising the step of wrapping the second absorbent material in tissue.

51. The method of Claim 44, wherein the first absorbent material is applied discontinuously to portions of the second absorbent material prior to bonding the first absorbent material and the second absorbent material together.

52. The method of Claim 44, further comprising the step of directing an additional mass of the homogeneously mixed superabsorbent material and pulp fluff into at least one area of the first absorbent material.

53. The method of Claim 44, further comprising the step of embossing a pattern onto the composite absorbent material.

54. The method of Claim 44, further comprising the step of compacting the composite absorbent material to a thickness of between 0.5 and 3.0 millimeters.

55. The method of Claim 44, further comprising the step of bonding a third absorbent material to the composite absorbent material.

56. The method of Claim 44, further comprising the step of bonding a drum-formed third absorbent material to the composite absorbent material.